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# Decadal prediction of North Pacific sea surface temperature

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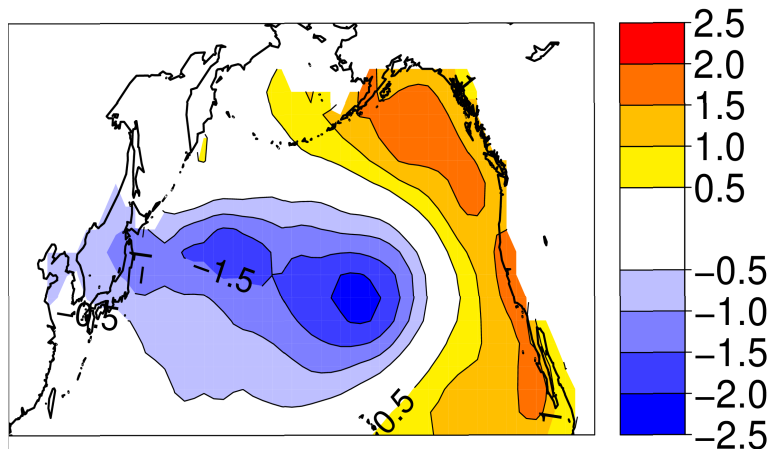
*From: Lienert and Doblas-Reyes, GRL 2012, submitted*

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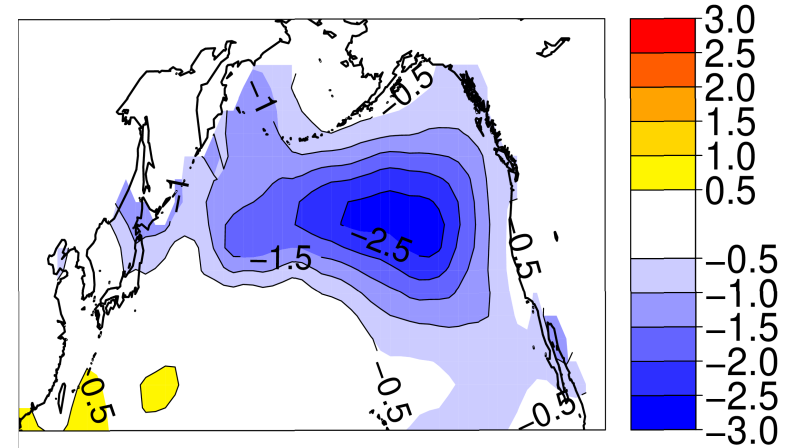
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- IPCC WGI is preparing the second-order draft of the Fifth Assessment Report for 10th August 2012.
  - Manuscripts can only be referenced if they have been submitted for publication before the end of July.
  - Given the scarce literature on decadal prediction, authors of manuscripts recently submitted or in preparation and to be submitted before the end of July are encouraged to send a copy to the relevant Chapter 11 (near-term climate change: projections and predictability) authors (Ben Kirtman, Paco Doblas-Reyes, Masa Kimoto, Geert Jan van Oldenborgh).
  - Are there any plans to publish results from the 30-year hindcasts/forecasts?
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# Observed leading three EOF patterns of North Pacific SSTAs

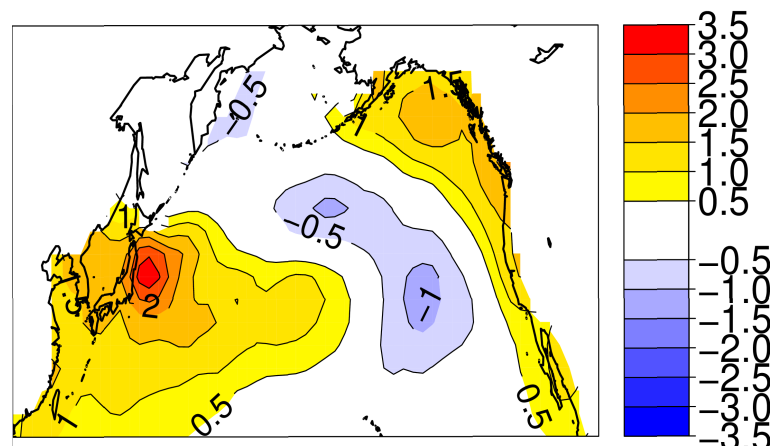
34% PDO



17% NPGO

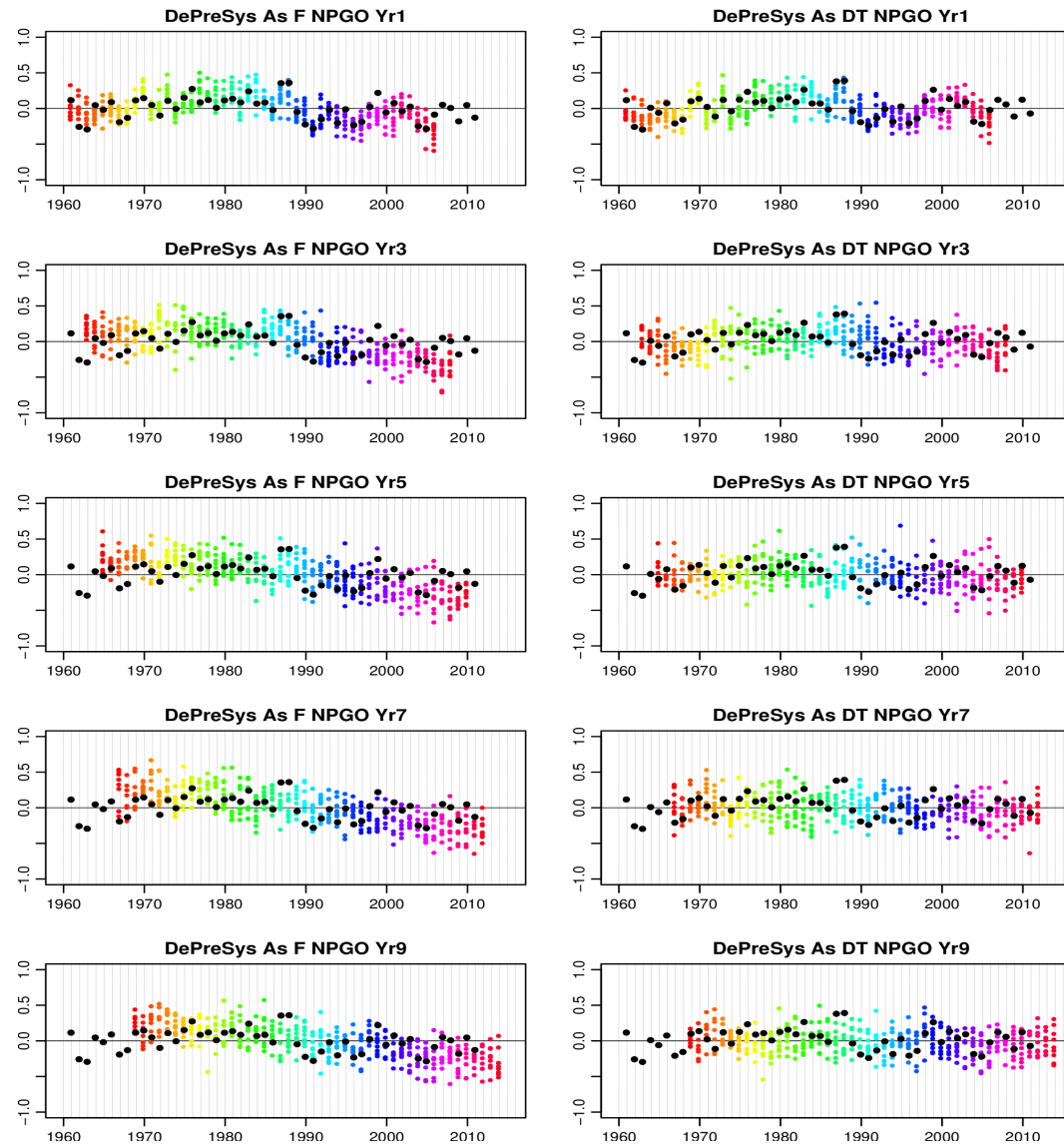


10% Third Mode



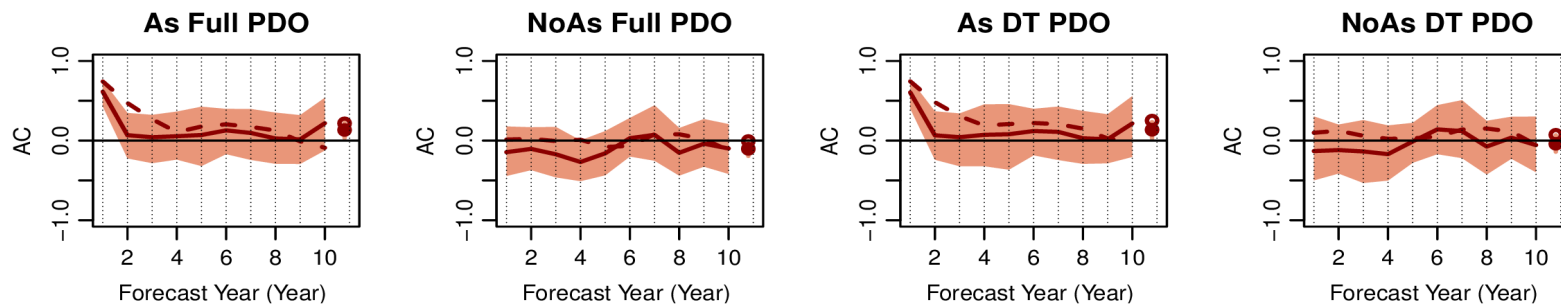
ERSST3b  
Nov 1960-Oct 2011

# NPGO re-forecasts as function of lead year



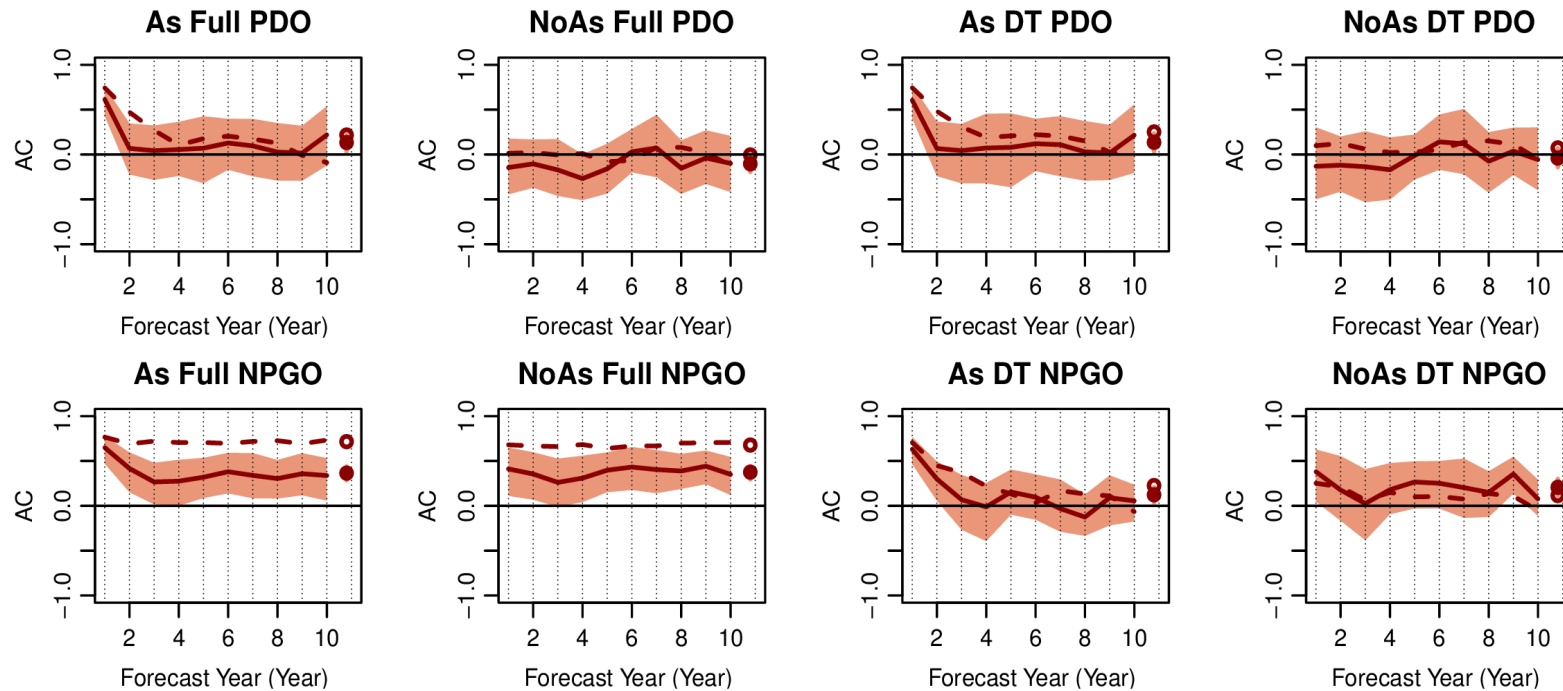


# Decadal forecast skill of North Pacific modes

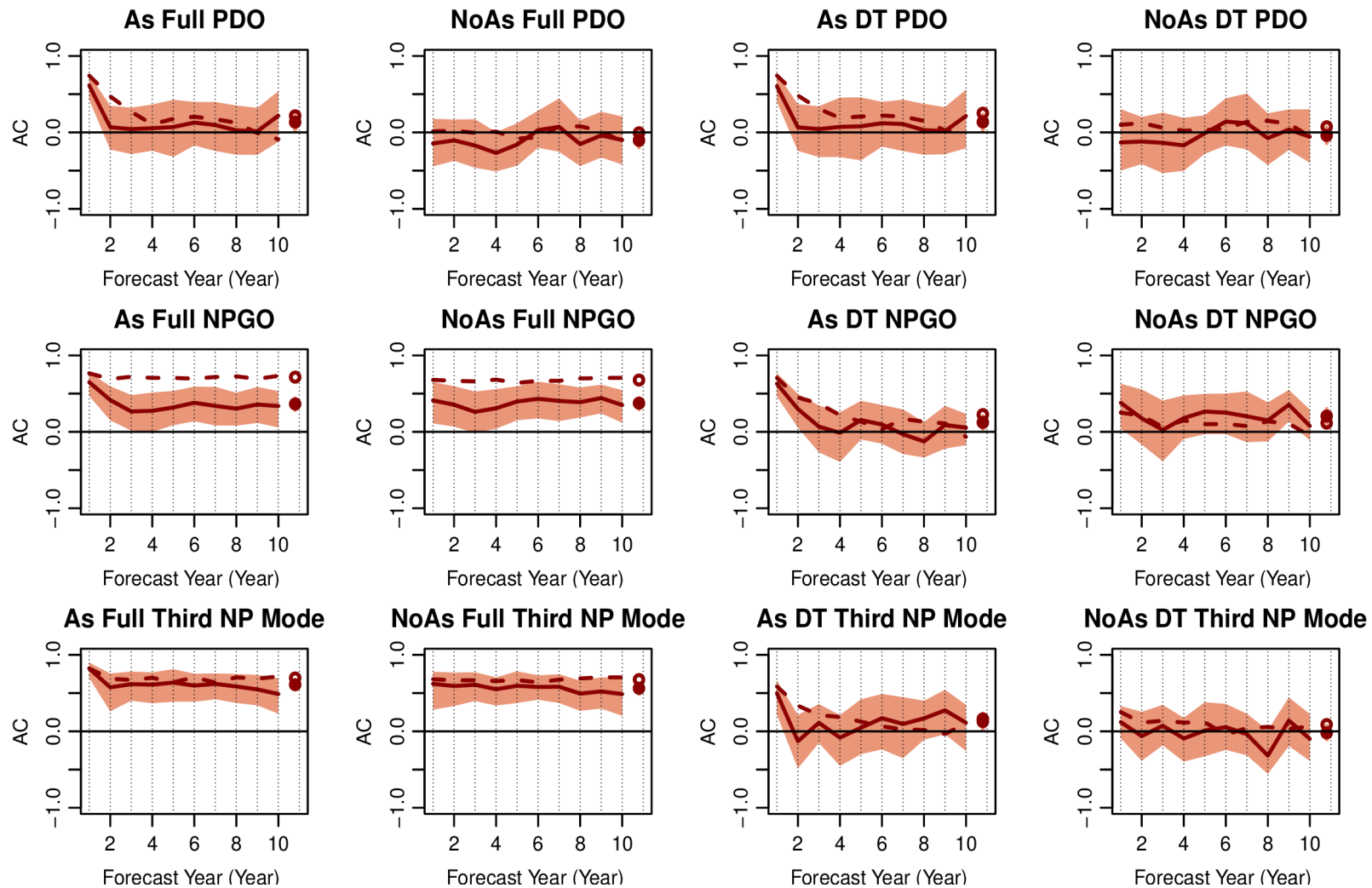


95%-confidence intervals (shaded) based on block bootstrap that accounts for serial correlation, 500 resamplings with replacement. Dots show average skill over 10-yr forecast range. DePreSys 10-yr re-forecasts started each Nov 1960-2005.

# Decadal forecast skill of North Pacific modes

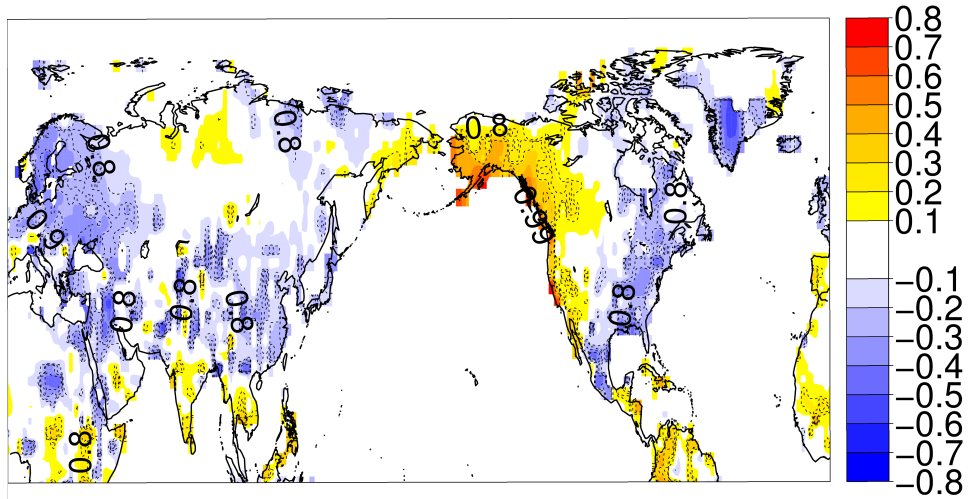


# Decadal forecast skill of North Pacific modes

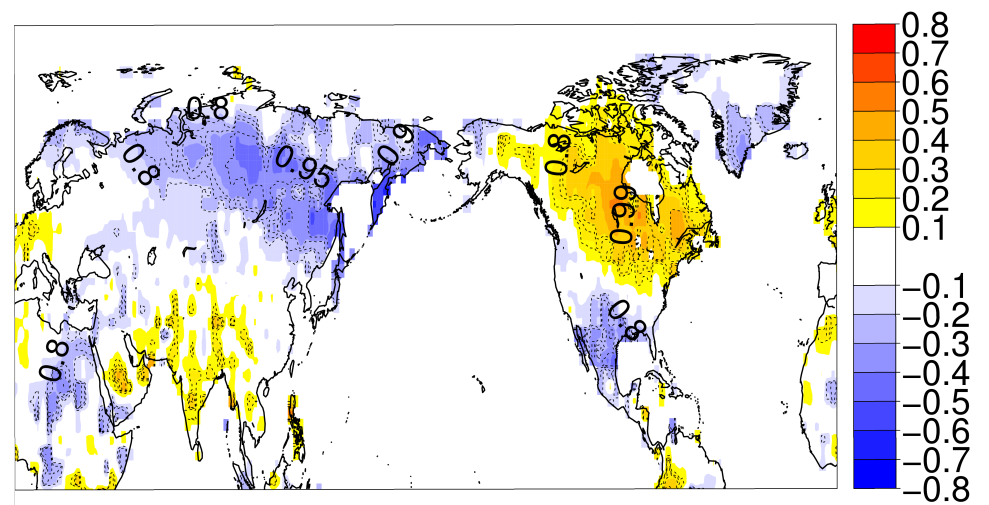


## North Pacific influence on temperature

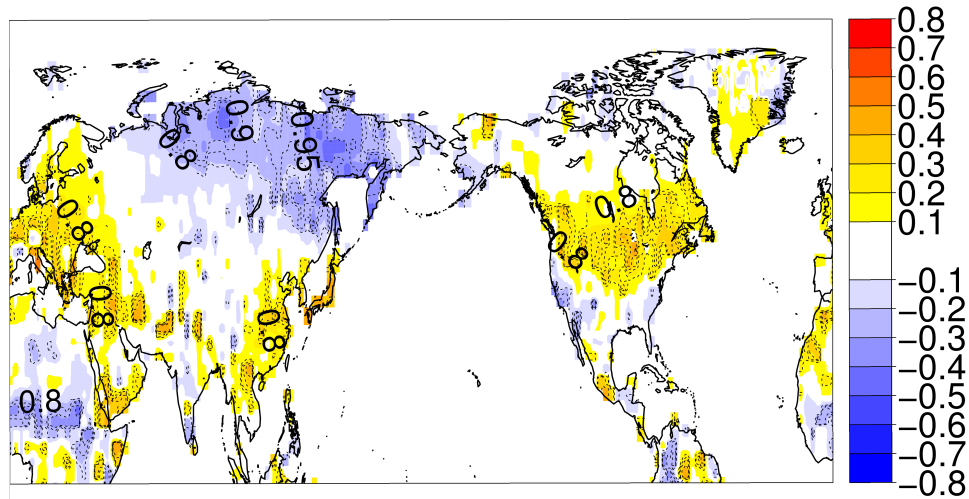
## GHCN Temperature & PDO regression



## GHCN Temperature & NPGO regression

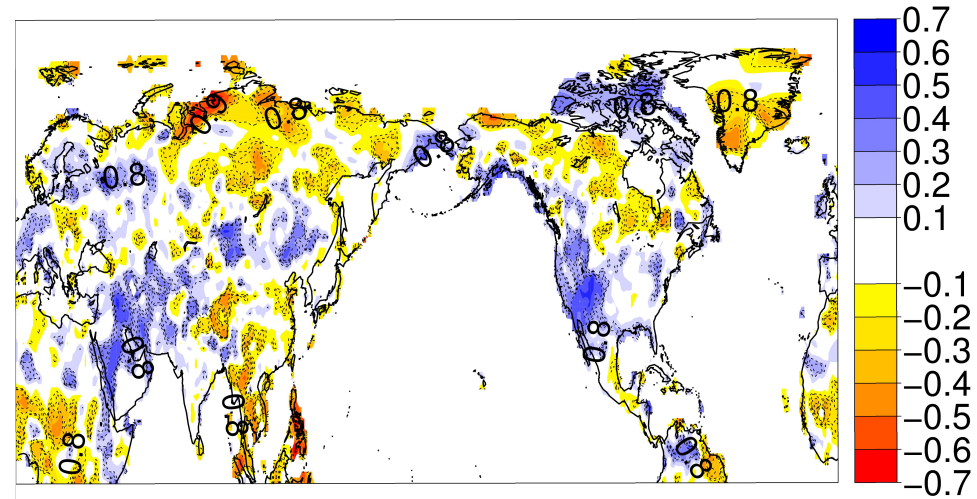


## GHCN Temperature & TNPM regression

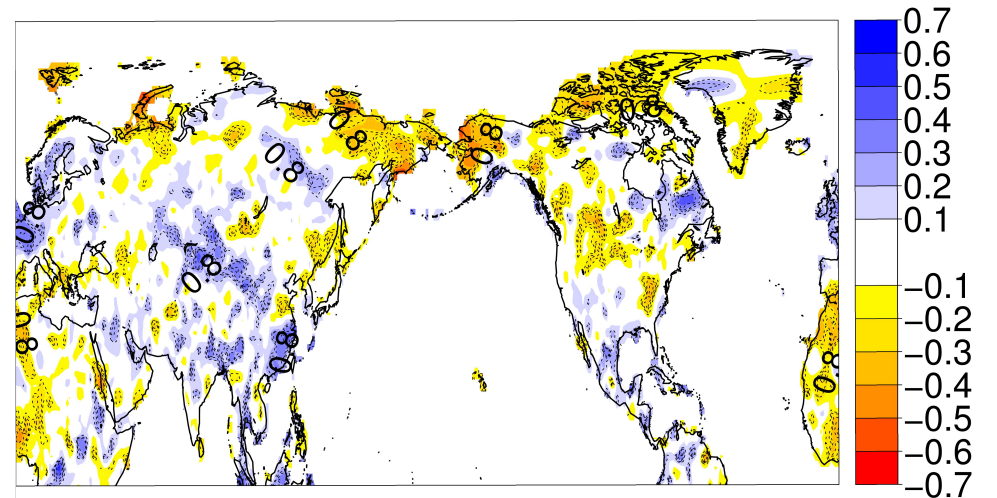


# North Pacific influence on precipitation

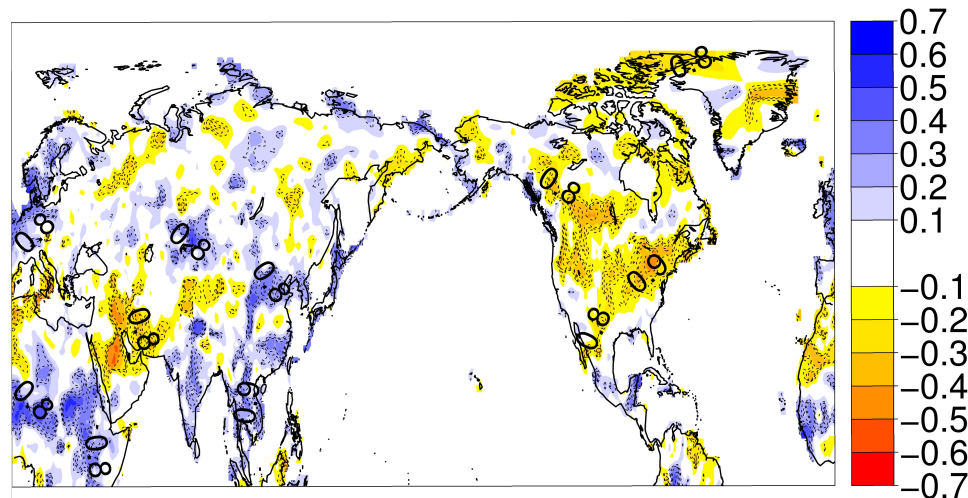
GPCP Precip & PDO regression



GPCP Precip & NPGO regression

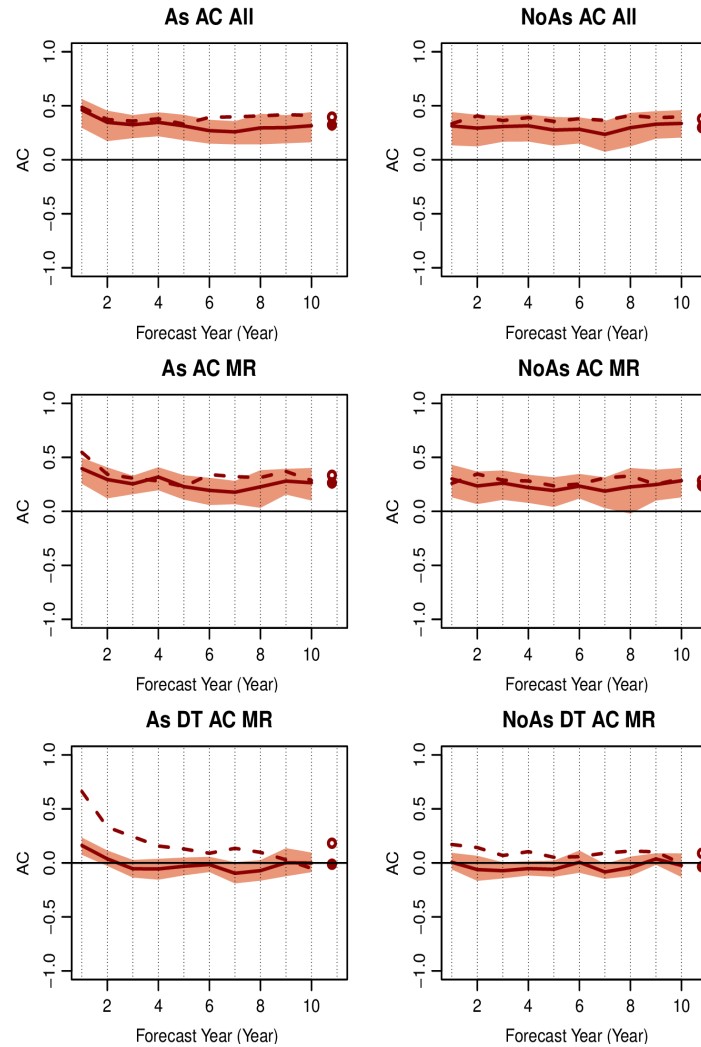


GPCP Precip & TNPM regression



# North Pacific influence on North American temperature

## North America

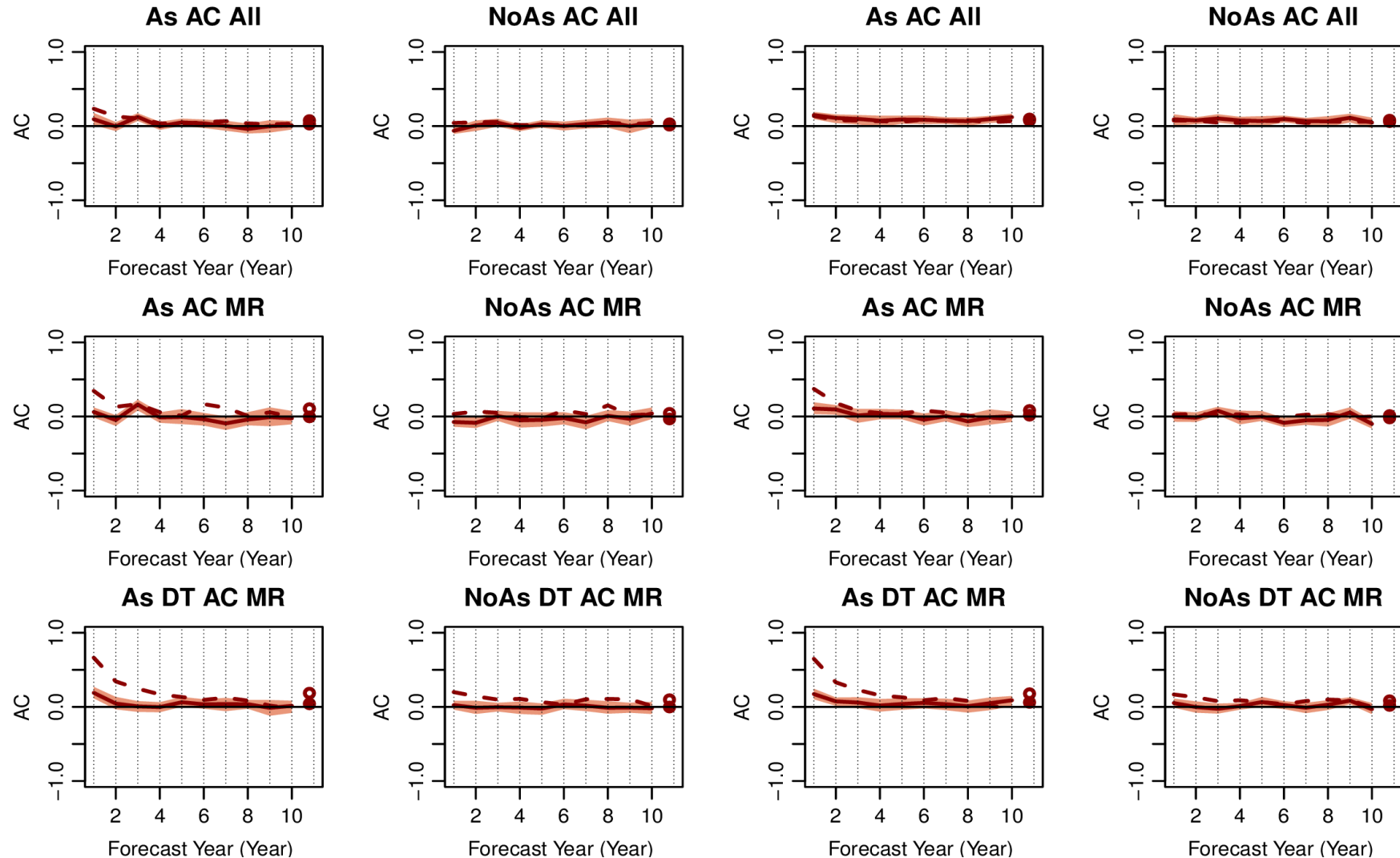




# North Pacific influence on North American, South Asian precip

## North America

## South Asia



# Summary

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- PDO skill limited to 1 year
  - Trend does not contribute to decadal PDO skill
  - NPGO/Third North Pacific mode skillfully re-forecast at decadal time scale
  - Three leading modes of annual-mean North Pacific SSTAs influence temperature and precipitation in Asia & North America
  - Positive decadal skill of North Pacific modes influence over North America
  - Similar to raw North American temperature skill
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